

REMARKS/ARGUMENTS

Discussion of Finality of Office Action

A second or subsequent action on the merits can be a final action, except where the Examiner produces a new ground of rejection that is neither necessitated by Applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set for the in 37 CFR 1.97(c). An Examiner may not make an Office Action relying on newly cited art a final action unless *all* instances of the application of such art are necessitated by amendment.

Applicant respectfully contends that the claim amendments submitted in the amendment dated November 10, 2003 did not necessitate new grounds for rejection of the claims. Applicant contends that one or more of the claim amendments from the amendment dated November 10, 2003 did not necessitate the application of the newly cited art. Therefore, Applicant respectfully requests reconsideration and withdrawal of the finality of the rejection.

Discussion of Objections to Drawings

The Examiner objected to the drawings under 37 CFR 1.83(a) for allegedly failing to show every feature of the invention specified in the claims. In particular, the charge-coupled device (CCD) camera and a phosphor plate imaging system, as claimed in Claims 5,6, 46, and 47, are allegedly not shown in the figures. Additionally, the CCD camera comprising a phosphor screen, as claimed in Claims 32 and 37, are allegedly not shown in the figures.

Applicant respectfully contends the drawings show the claimed features. Applicant respectfully directs the Examiner to the specification paragraphs describing Figures 1 and 2. Figures 1 and 2 both show an X-Ray detector labeled with reference designator 116.

In the description of the X-ray detector 116, which appears in both Figures 1 and 2, the specification states that an imaging plate system such as one using phosphor plates is an example of an X-ray detector having suitable sensitivity. At page 11 ll. 27-30, the specification states: " an ideal X-ray detector should be at least as sensitive as the presently commercially

available imaging plate systems, such as the phosphor plates made by FUJIFILM MEDICAL SYSTEMS U.S.A., INC. (for example, the BAS 2500NDT) which are some of the most sensitive X-ray detectors that currently exist." Thus, at least Figures 1 and 2 show an X-ray detector 116 that can be a phosphor plate imaging system.

Additionally, the portion of the specification describing the X-ray detector 116 also provides an example where the X-ray detector 116 is a CCD camera. At page 12 ll. 1-2 the specification states: "However, in a preferred embodiment, the X-ray detector 116 is a cooled Charge Coupled Device (CCD)...." Thus, at least Figures 1 and 2 show an X-ray detector 116 that can be a CCD camera.

Further, the specification explicitly describes a CCD X-ray detector 116 having a phosphor screen. At page 11 ll. 17-19, the specification states: "An ideal X-ray detector 116 preferably combines the high sensitivity of the phosphor plates with the rapid readout of a CCD camera." The specification at page 12 ll. 6-8 goes on to further describe the X-ray detector and states: "The CCD detector preferably includes a phosphor screen, with or without a fiber-optic taper front-end." Therefore, an X-ray detector 116 that is a CCD camera having a phosphor screen is shown as X-ray detector 116 in the functional block diagrams of Figures 1 and 2, as described in the specification.

As discussed above, at least two of the functional block diagrams, Figures 1 and 2, show an X-ray detector 116. The specification, in describing the elements of the functional block diagrams, describes the X-ray detector 116 and provides examples where the X-ray detector can be a phosphor plate imaging system, a CCD camera, or a CCD camera having a phosphor screen.

Applicant respectfully requests the Examiner reconsider and withdraw the objections to the figures in light of the above remarks.

Discussion of Claim Objections

The Examiner objected to Claim 14 for the use of the term "another" rather than "other." Applicant, by this paper, amends Claim 14 in the manner suggested by the Examiner.

The Examiner objected to Claim 15 as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant, by this paper, cancels Claim 15 and amends Claim 16 to remove the dependency upon Claim 15.

The Examiner objected to Claim 19 as being identical to Claim 14. Applicant, by this paper, cancels Claim 19.

The Examiner objected to Claim 34 for use of the term "growing incubator" rather than "growth environments" in line 8 of the claim. Further, the Examiner objects to the last paragraph of the claim and suggests the last paragraph of the claim be deleted. Applicant, by this paper, amends Claim 34 to use the term "growth environments" in line 8 of the claim as suggested by the Examiner. However, Applicant is unaware of any reasons for the objection to the final paragraph of the claim and has not deleted the final paragraph. Applicant respectfully submits that the amendments of the present claims are for the purposes of correcting grammar or other such informalities, and that the amendments do not narrow the scope of the claims.

Applicant believes the claim amendments overcome all of the claim objections and respectfully requests reconsideration and withdrawal of the claim objections.

Discussion of Rejections Under 35 USC §102(e)

The Examiner rejects Claims 1, 3, 4, 8-9, 11-21, 25-28, 34-35, 39-45, 48-49, and 51 under 35 USC §102(e) as allegedly anticipated by U.S. Patent No. 6,507,636 to Lehmann (hereinafter Lehmann). The Examiner alleges that Lehmann discloses all features of the claims.

A reference anticipates a claim if each and every element as set forth in the claim is found, either expressly or inherently described, in the single prior art reference. *Verdegaal Bros. v. Union Carbide Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987). *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66F.3d 299 (Fed. Cir. 1995).

Applicant contends that Lehmann fails to disclose or even suggest at least one feature of each of the rejected claims. Claims 1, 34, and 44 claim apparatuses for detecting the presence of crystalline material in its *in-situ* growth environment. Similarly, Claims 11 and 25 claim methods of screening for crystalline material in its *in-situ* growth environment.

Apparatus Claims 1, 34, and 44 include a crystal growing incubator having multiple crystal growth environments. Additionally, Claims 1 and 34 include a positioner that positions or aligns the X-ray system with each of the growth environments. Claim 44 includes an imaging system configured to detect the presence and location of crystals grown in the multiple growth environments. As can be seen from the language of the claims, the claimed apparatuses process the crystals in the growth environments within the growth incubator. Lehmann fails to disclose this claimed feature.

Lehmann discloses an apparatus in which crystals are grown in a well plate having a detachable base plate. Lehman states: "The present invention provides a device in form of a *multi-well plate with detachable base plate....*" Lehmann Col. 2 ll. 20-21 (*emphasis added*). Crystals or other precipitates that form on the detachable base plate can be examined using X-ray diffraction after the base plate is detached from the well plate. *See Id.* at ll. 32-33 ("In one embodiment...crystalline or polycrystalline precipitates form on the removable base plate...."). Further, Lehmann does not teach the X-ray diffraction of crystals in their growth environment. Instead, Lehmann states "[a]rrays of crystalline, polycrystalline or even amorphous precipitates are transferred to the X-ray micro-diffractometer for the purpose of characterization using X-ray diffraction. *For this purpose the base plate is separated from the remaining components of the multi-well plate.*" *Id.* at Col 4 ll. 21-26 (*emphasis added*). The illustrative example provided in Lehmann reinforces the idea that the crystal is removed from its initial growth environment for X-ray diffraction. Lehmann discusses the preparation of a compound in a multi-well plate where the solvent in the wells "evaporates completely within 24h and polycrystalline precipitates form on the bottom face of the filled wells." *See generally, Id.* at Col. 5 ll. 1-19. Lehmann then discusses the preparation of the samples for X-ray diffraction. "The polymer film with the attached crystalline precipitates is removed from the multi-well plate assembly and positioned into the X-ray beam ... diffractometer by means of a clamping frame." *Id.* at ll. 20-25.

Therefore, it is clear that analysis of the crystal samples in Lehmann is performed on crystals removed from their initial growth environment, and with the base plate of the multi-well plate removed. Thus, not only does Lehmann fail to disclose a growth environment during

X-ray diffraction, Lehmann also fails to show a crystal growing incubator in which the X-ray source or detector can be adjacently disposed.

Independent method Claim 11 similarly features the steps of irradiating the crystalline material in the *in situ* growth environment. Also, Claim 25 features determining the presence of crystalline material in at least one of the crystal growth environments and for each growth environment identified as having crystalline material, positioning the crystal growing incubator and X-ray source relative to each other. Thus, Claims 11 and 25 also feature X-ray analysis of the crystalline material in the growth environment. As discussed above, Lehmann only discloses analyzing the crystal precipitate after removing the base plate from the well plate.

Therefore, because Lehmann fails to show at least one claimed feature, Lehmann does not anticipate Claims 1, 11, 25, 34, and 44. Applicant respectfully requests reconsideration and allowance of Claims 1, 11, 25, 34, and 44.

Discussion of Dependent Claims

Claims 3-4, 8-9, 12-14, 16-18, 20-21, 25-28, 35, 39-43, 45, 48-49, and 51 depend, either directly or indirectly from one of Claims 1, 11, 25, 34, or 44 and are believed to be allowable at least for the reason that they depend from an allowable base claim. One or more of the dependent claims may have additional patentable features not discussed above. Applicant respectfully requests reconsideration and allowance of Claims 3-4, 8-9, 12-14, 16-18, 20-21, 25-28, 35, 39-43, 45, 48-49, and 51.

Discussion of Rejections Under 35 USC §103(a)

The Examiner rejects Claims 5, 6, 32-33, 36-38, 46 and 47 under 35 USC §103(a) as allegedly unpatentable over Lehmann in light of U.S. Patent No. 5,629,524 to Stettner et al. (hereinafter Stettner). The Examiner rejects Claims 10 and 50 under 35 USC §103(a) as allegedly unpatentable over Lehmann in light of U.S. Patent No. 6,205,199 to Polichar et al. (hereinafter Polichar). The Examiner rejects claims 22 and 29 under 35 USC §103(a) as allegedly unpatentable over Lehmann in light of U.S. Patent No. 6,468,346 to Arnowitz et al.

(hereinafter Arnowitz). The Examiner also rejects Claims 23-24, and 30-31 under 35 USC §103(a) as allegedly unpatentable over Lehmann.

As noted above in the discussion of rejections under 35 USC §102(e), Lehmann fails to disclose each and every feature of independent Claims 1, 11, 25, 34, and 44. Each of the additional references cited by the Examiner, Stettner, Polichar, and Arnowitz also fails to teach or suggest the claimed features that are not taught nor suggested by Lehmann.

Stettner discloses an X-ray detector and fails to disclose any operation of the X-ray detector relative to the growth environments and growing incubators. Polichar similarly discusses an X-ray apparatus and has no discussion of crystallization growth environments or crystal growing incubators. Arnowitz also discusses crystal topography of crystals that are removed from their growth environments. *See, Arnowitz Col 11 ll. 12-14 ("Next, the crystals were removed from the original protein crystallization chamber and placed in artificial mother liquor in hanging drops.") See also, Id. at ll. 42-46 ("Crystals grown in space were approximately equal in size to their ground counterparts....The principal difference was manifest in the removal process.") (emphasis added).*

Each of the additional references cited by the Examiner also fails to teach or suggest the use of the growth environments within the crystal growing incubator. Likewise, Lehmann fails to suggest such a configuration and touts the structure in which the base plate is removed from the growth environment and growing incubator. Therefore, the cited references, either alone or in combination, fail to teach or suggest all of the claimed features of independent Claims 1, 11, 25, 34, and 44. Thus, independent Claims 1, 11, 25, 34, and 44 are patentable in light of the cited references. Because Claims 5, 6, 10, 22-24 29-33, 36-38, 46-47, and 50 depend from one of Claims 1, 11, 25, 34, or 44, they are believed to be allowable at least for the reason that they depend from an allowable base claim. applicant respectfully requests reconsideration and allowance of Claims 5, 6, 10, 22-24 29-33, 36-38, 46-47, and 50.

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Examining Group

PATENT

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-350-6100 .

Respectfully submitted,



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